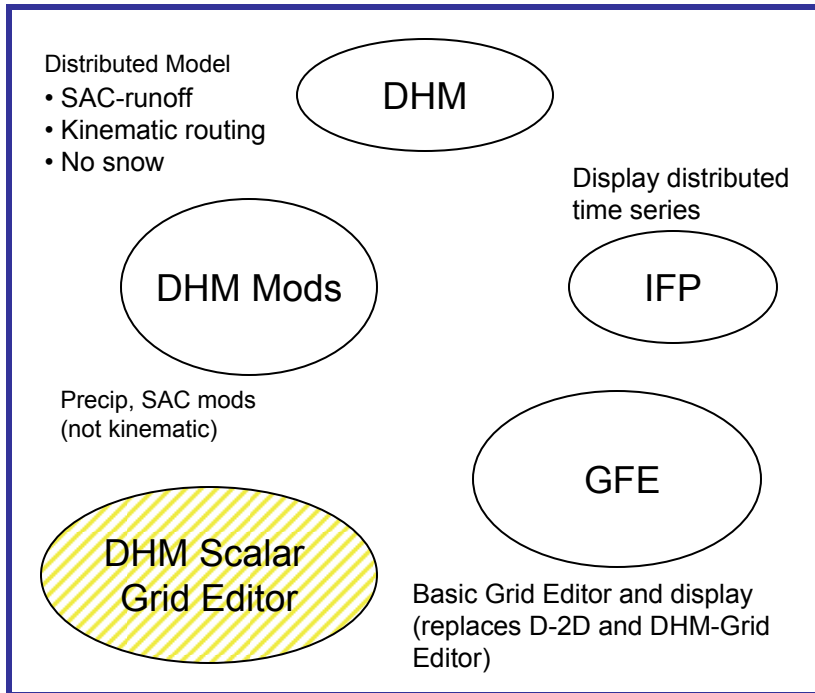# DHM Workshop
June 2007

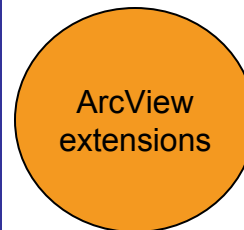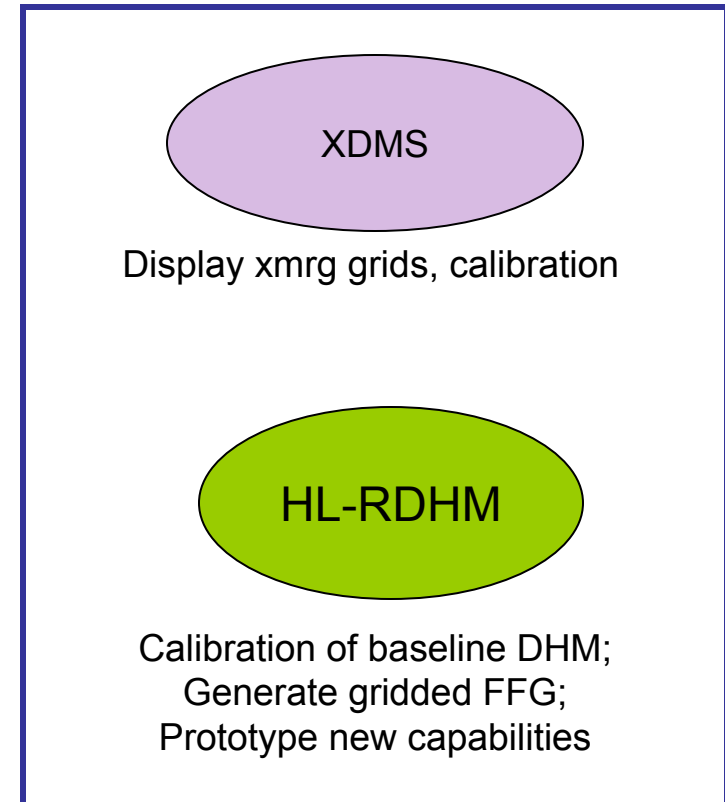## Chris Dietz

OHD HL HSEB

Agenda

- Review of operational DHM approach in OB8.3, OB9
- AWIPS II is coming
- CHPS is coming
- CHPS & AWIPS II
- DHM in a CHPS environment
- DHM in the future
- Challenges
- Further Reading

DHM Approach for OB8.3, OB9

AWIPS Operational Baseline

Distributed Model
• SAC-runoff
• Kinematic routing
• No snow

DHM

Display distributed time series

DHM Mods

IFP

Precip, SAC mods (not kinematic)

GFE

DHM Scalar Grid Editor

Basic Grid Editor and display (replaces D-2D and DHM-Grid Editor)

ArcView extensions

(Calibration Assistance Program)

Local applications

XDMS

Display xmrg grids, calibration

HL-RDHM

Calibration of baseline DHM; Generate gridded FFG; Prototype new capabilities

Retire OHD-developed application

ASM-maintained application in operational Baseline

Field-developed application in LAD

HSMB prototype in LAD

OB8.3 → deploy June 2008
OB9 → deploy ~June 2009

3

AWIPS II is coming

- **AWIPS Development Environment (ADE)**
  - Service Oriented Architecture (SOA)
  - Toolkit developed by Raytheon
  - Common environment for development and operations
  - Contains Common AWIPS Visualization Environment (CAVE) for GUI development
  - 1st formal version of developer toolkit imminent (June 2007)
- **Complete re-engineering of AWIPS based on ADE**
  - Phased-in via a series of contractual Task Orders (TO)
  - Multi-year execution July 2007 – June 2009
  - Roll-out June 2009 – June 2010
  - OB9 (Summer 2009) will use current AWIPS architecture

CHPS is coming

- **CHPS FEWS Pilot**
  - Based on Delft's Flood Early Warning System (FEWS)
  - Goal of Pilot is to help RFCs determine if FEWS is a viable replacement for NWSRFS

- **First phase**
  - 2 pilot sites: NWRFC, NCRFC
  - Demonstration at NWRFC in April 2007 (complete)

- **Second phase**
  - 3rd pilot site to be added: ABRFC
  - Add "mods-like" capability
  - Introduce use of Ensembles at one RFC
  - Extra training to allow RFCs to configure basins with little help
  - Demonstration at NCRFC in ~Fall 2007 (date TBD)

CHPS is coming (cont'd)

- **Evaluation**
  - Apex currently leading Pilot assessment task
  - Pilot RFCs to identify missing functionality/requirements for first operational version of CHPS
- **Status**
  - FEWS looks very promising
  - Formal decision to be made in Fall 2007 by CHPS Acceleration Team (CAT)
- **Timeframe**
  - CHPS Initial Operating Capability (IOC) targeted for Summer/Fall 2008
  - NWSRFS and CHPS to run together during transition
- **New Paradigm**
  - Shorter, faster releases at Pilot sites
  - Back-to-back ATANs to pilot new capabilities
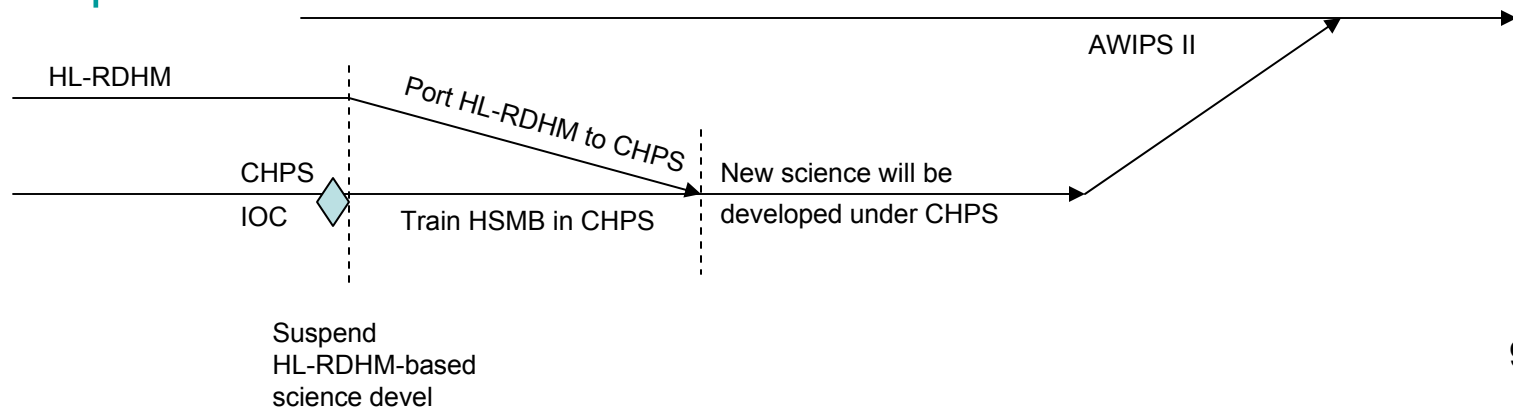
CHPS & AWIPS II

- **Similar architectural components**
  - Good compatibility
- **CHPS and NWSRFS to co-exist during transition from NWSRFS to CHPS:**
  - NWSRFS to remain in place under current AWIPS architecture
  - Raytheon to write adapter interface to NWSRFS for AWIPS II in final T.O.
    - **Details unknown**
    - **Roll out with 1st release of AWIPS II**
  - CHPS IOC not part of 1st AWIPS II delivery
  - CHPS to become new major addition to AWIPS II
    - **CHPS will provide RFC-specific features not available in AWIPS II**
- **Current Issue: GUIs**
  - FEWS has completely new look and feel: not like CAVE; not like IFP
  - Options: write new CAVE-based GUIs for CHPS; or use FEWS native GUIs with extensions
- **OHD recently initiated task with Raytheon to define interface between CHPS and AWIPS II**
  - Raytheon expects to begin analysis work ~July 2007

DHM in a CHPS environment

- No FEWS built-in distributed modeling capability
  - DHM model engine already engineered to be modular, can be easily incorporated into FEWS
- GUIs to become more CHPS-oriented
  - FEWS native GUIs with extensions, or AWIPS II CAVE GUIs
  - IFP, ICP, IVP GUIs to be consolidated?

DHM in the future

- **HSMB to continue prototyping**
  - Initially continue to use HL-RDHM while CHPS being developed
- **Conversion of HL-RDHM to CHPS**
  - Prototype development based on HL-RDHM must be suspended until conversion complete
- **"Plug-and-play" environment will streamline science-to-operations**
  - Prototype development uses same architecture as software engineering, and same architecture as forecast operations

AWIPS II

HL-RDHM

Port HL-RDHM to CHPS

CHPS
IOC

Train HSMB in CHPS

New science will be developed under CHPS

Suspend
HL-RDHM-based
science devel

Challenges

- **Resource Contention**
  - Software engineering staff to be engaged on higher priority projects:
    - CHPS
    - Ensembles
    - AWIPS II
- **Badly need 'overarching' plan for DHM**
  - OHD to engage contractor to develop science-to-operations plan
  - OB9 version of DHM to remain in operations until CHPS/AWIPS II arrives
  - Must be integrated with AWIPS II, CHPS schedules

Further Reading

- Delft-FEWS:
http://www.wldelft.nl/soft/fews/int/index.html

- OSIP project documentation for CHPS Infrastructure:
https://osip.nws.noaa.gov/osip/index.php

  [Password protected (email). Look under project # 07-017]

- HOSIP project documentation for Pilot first phase:
https://bestpractices.nws.noaa.gov/contents/hosip/

  [Password protected (email). Look under Software Architecture, then select Community Hydrologic Prediction System/Flood Early Warning System (CHPS FEWS) Pilot]